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ART UNIT	**PAPER NUMBER**
1655	5

DATE MAILED: 09/17/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/332,659	Zenhausern
Examiner	**Art Unit**
Arun Chakrabarti	1655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Aug 17, 2001 .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-26 and 34-36 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-26, 35, and 36 is/are rejected.

7) ☒ Claim(s) 34 is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Group I, corresponding to claims 1-26 and 34-36, in Paper No. 4 is acknowledged. The traversal is on the ground(s) that reconsideration of the restriction requirement as to the claims of Groups II is requested. This is not found persuasive because applicant argues that there would be no burden in searching Groups II with Group I. However, as the restriction makes clear, additional search of Groups II would require review of the patents in class 364, subclass 400+. Review of these additional searches is prima facie evidence of burden which is not rebutted.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The claim 34 is objected to because it is dependent on non-elected claim 33 . Correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-26 and 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected as indefinite because the instantly claimed method lacks a final process step that clearly relates back to the preamble. For the method of claim 1, the preamble of the instantly claimed method is drawn to a method for monitoring information in a medium while the final process step is that of sorting the information in accordance with the class boundaries and it is thus unclear as to whether the instantly claimed method is drawn to a method for monitoring information in a medium or rather sorting the information in accordance with the class boundaries. Method claim requires a last step or phrase in the last step that states the accomplishments of the goals for the method which were stated in the method's preamble. Claim 1 lacks such a last step and is confusing because the additional method step is not sufficiently set forth. While minute details are not required in method claims, at least the basic steps must be recited in a positive, active fashions. See Ex parte Erlich, 3 USPQ2d1011, p.1011 (Bd. Pat. Applicant. Int. 1986). It is suggested that an amended claim more clearly describing the intended steps be submitted.

5. Claim 1 is also rejected over the recitation of the phrase, "preferably" on line 15. It is not clear if the limitation following the phrase is a part of the claimed invention. The metes and bounds of the claims are vague and indefinite.

Claim 1 is also rejected over the recitation of the phrase, "operable" on line 12. It is not clear if the limitation following the phrase is a part of the claimed invention. The metes and bounds of the claims are vague and indefinite.

Claim 1 is also rejected over the recitation of the phrase, "class boundaries" on lines 13 and 14. It is not clear if the chemical class is claimed or biological class is claimed or a combination thereof is claimed. The metes and bounds of the claims are vague and indefinite.

Claim 20 is also rejected over the recitation of the phrase, "deterministic finite-state automata" on line 15. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claims 22-23 are also rejected over the recitation of the phrases, "trained", "supervised", "untrained" and "unsupervised". It is not clear who are the trainers or supervisers or who are being trained or supervised. It is also not clear what kind of training or supervising are claimed. The metes and bounds of the claims are vague and indefinite.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

7. Claims 1-3, 6, 8, 10-11, 13-18, 24-26, 35 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Nova et al. (U.S. Patent 6,100,026) (August 8, 2000).

Nova et al teach a method for monitoring information in a solid medium (Abstract), the medium comprising the steps of:

a) screening the medium with a screening means comprising a n number of sensing probes, where n is an integer of at least one so that more than one physical, chemical, or physico-chemical change which defines the information is detected by the probe to produce at least one signal output (Column 5, line 51 to Column 6, line 30, Column 25, line 66 to Column 26, line 4 and Column 79, lines 23 to column 89, line 30);

b) transferring the signal output to a signal processing means responsive to differences in electromagnetic properties of the signal for generating a final output (Column 6, lines 52-56, Column 12, lines 20-37 and Column 90, lines 27-54, Figure 7);

c) receiving the final output into a pattern recognition means sufficient to generate a measurement pattern of the information being operable to define a set of class boundaries (Column 7, line 64 to Column 8, line 18, Figures 24 and 31); and

d) sorting the information in accordance with the class boundaries representative of the presence and preferably quantitative amounts of biomolecule in the medium (Figure 31, Column 79, line 50 to Column 80, line 16 and Column 90, line 55 to column 91, line 53).

Nova et al teach a method wherein the n number of sensing probes is a multiple sensor array (Abstract and Column 87, line 31 to Column 89, line 31 and Column 7, lines 35-49).

Nova et al teach a method wherein the sensing probe comprises at least one conductive polymer sensor (Column 68, lines 28-38).

Nova et al teach a method wherein the sensing probe has a coating (Column 68, lines 28-38).

Nova et al teach a method wherein the sensing probe is an optical sensing probe (Abstract and Column 63, lines 30-62).

Nova et al teach a method wherein the sensing probe is an optical fiber (Column 63, line 63 to Column 64, line 18).

Nova et al teach a method wherein at least part of the information detected by the probe is changes in the concentration of the biomolecule (Column 79, line 50 to Column 80, line 16).

Nova et al teach a method wherein at least part of the information detected by the probe is changes in a secondary product of the biomolecule (Column 91, line 55 to Column 92, line 40).

Nova et al teach a method wherein at least part of the information detected by the probe is changes in a radiative property of the electromagnetic spectrum of the biomolecule (Column 6, lines 52-56, Column 12, lines 20-37 and Column 90, lines 27-54, Figure 7).

Nova et al teach a method wherein at least part of the information detected by the probe is changes in a non-radiative property of the electromagnetic spectrum of the biomolecule (Column 77, line 63 to Column 78, line 63).

Nova et al teach a method wherein at least part of the information detected by the probe is changes in a non-radiative property of the electromagnetic spectrum of a secondary product of the biomolecule (Column 91, line 55 to Column 92, line 40).

Nova et al teach a method wherein the medium comprises at least one of organic or inorganic solvent (Example 1).

Nova et al teach a method wherein the signal processing means comprises a frequency analyzer (Figure 24 and Column 81, lines 19-42).

Nova et al teach a method wherein the optical probe is an apertureless or apertured probe (Figure 8 and Column 55, line 44 to Column 56, line 23).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-4, 6, 8, 10-18, 24-26, 35 and 36 are rejected under 35 U.S.C. 103(a) over Nova et al. (U.S. Patent 6,100,026) (August 8, 2000) in view of Payne et al. (U.S. Patent 5,807,701) (September 15, 1998).

Nova et al teach a method of claims 1-3, 6, 8, 10-11, 13-18, 24-26, 35 and 36 as described above.

Nova et al do not teach a method wherein the sensing probe is a semiconductor gas sensor.

Payne et al. teach a method wherein the sensing probe is a semiconductor gas sensor. (Abstract and Column 1, lines 45-49).

Nova et al do not teach a method wherein the information comprises at least one of volatile chemical species characteristic of the presence of the biomolecule or the part of the biomolecule.

Payne et al teach a method wherein the information comprises at least one of volatile chemical species characteristic of the presence of the biomolecule or the part of the biomolecule. (Figure 5).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute the method of semiconductor gas sensor sensing probe of Payne et al. into the method of monitoring information of Nova et al. since Payne et al. state, "The invention comprises a method for identifying bacteria comprising detecting gas or vapor associated with the metabolic activity of the bacteria and differentiating such gas or vapor from gas or vapor associated with other bacteria (Column 1, lines 22-26)." By employing scientific reasoning, an ordinary artisan would have combined and substituted the method of semiconductor gas sensor sensing probe of Payne et al. into the method of monitoring

information of Nova et al. to improve the specific detection of bacteria. An ordinary practitioner would have been motivated to combine and substitute the method of semiconductor gas sensor sensing probe of Payne et al. into the method of monitoring information of Nova et al. in order to achieve the express advantages noted by Payne et al., of an invention that comprises a method for identifying bacteria comprising detecting gas or vapor associated with the metabolic activity of the bacteria and differentiating such gas or vapor from gas or vapor associated with other bacteria.

10. Claims 1-3, 6-11, 13-26, 35 and 36 are rejected under 35 U.S.C. 103(a) over Nova et al. (U.S. Patent 6,100,026) (August 8, 2000) in view of Ashe et al. (U.S. Patent 5,699,270) (December 16,1997).

Nova et al teach a method of claims 1-3, 6, 8, 10-11, 13-18, 24-26, 35 and 36 as described above.

Nova et al do not teach a method wherein the sensing probe is a resonant micromechanical device mass spectrometer.

Ashe et al. teach a method wherein the sensing probe is a resonant micromechanical device mass spectrometer (Abstract and Claim 3).

Nova et al do not teach a method wherein the multivariate analysis is principal component analysis, deterministic finite-state automata, partial least squares and trained or untrained.

Ashe et al. teach a method wherein the multivariate analysis is principal component analysis, deterministic finite-state automata, partial least squares and trained or untrained. (Abstract and Column 6, line 23 to Column 7, line 12).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute the method wherein the multivariate analysis is principal component analysis, deterministic finite-state automata, partial least squares and trained or untrained of Ashe et al. into the method of monitoring information of Nova et al. since, since Ash et al. state, "Coefficients provided by this model are mathematically combined with the suitably treated mass spectral data from samples with unknown desired properties to: a) predict desired properties, b)assess the suitability of the model for such predictions, and c) diagnose the stability and general correctness of the process that yielded the mass spectral data (Column 7, lines 4-12)." By employing scientific reasoning, an ordinary artisan would have combined and substituted the method wherein the multivariate analysis is principal component analysis, deterministic finite-state automata, partial least squares and trained or untrained of Ashe et al. into the method of monitoring information of Nova et al. to improve the method of monitoring information of a biomolecule. An ordinary practitioner would have been motivated to combine and substitute the method wherein the multivariate analysis is principal component analysis, deterministic finite-state automata, partial least squares and trained or untrained of Ashe et al. into the method of monitoring information of Nova et al. in order to achieve the express advantages noted by Ashe et al., of an invention that provides coefficients which are

mathematically combined with the suitably treated mass spectral data from samples with unknown desired properties to: a) predict desired properties, b)assess the suitability of the model for such predictions, and c) diagnose the stability and general correctness of the process that yielded the mass spectral data.

11. Claims 1-3, 5, 6, 8, 10-11, 13-18, 24-26, 35 and 36 are rejected under 35 U.S.C. 103(a) over Nova et al. (U.S. Patent 6,100,026) (August 8, 2000) in view of Ghahramani et al. (U.S. Patent 6,259,373 B1) (July 10, 2001).

Nova et al teach a method of claims 1-3, 6, 8, 10-11, 13-18, 24-26, 35 and 36 as described above.

Nova et al do not teach a method wherein the medium is a gas or vapor, and wherein the sensing probe comprises at least one of a metal oxide gas sensor used in gas or vapor phase.

Ghahramani et al. teach a method wherein the medium is a gas or vapor, and wherein the sensing probe comprises at least one of a metal oxide gas sensor used in gas or vapor phase.(Column 24, lines 37-55).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute the method wherein the medium is a gas or vapor, and wherein the sensing probe comprises at least one of a metal oxide gas sensor used in gas or vapor phase. of Ghahramani et al. into the method of monitoring information of Nova et al. since Ghahramani et al. state, "The gas sensors must fulfill many exploitation requirements: the most important parameters are: sensitivity, selectivity, reading reproducibility, stability

during the operation, quick response, small size safety operation, low power consumption, ~15 mW, and low cost (Column 24, lines 43-48)." By employing scientific reasoning, an ordinary artisan would have combined and substituted the method wherein the medium is a gas or vapor, and wherein the sensing probe comprises at least one of a metal oxide gas sensor used in gas or vapor phase. of Ghahramani et al. into the method of monitoring information of Nova et al. to improve the gas sensor probes. An ordinary practitioner would have been motivated to combine and substitute the method wherein the medium is a gas or vapor, and wherein the sensing probe comprises at least one of a metal oxide gas sensor used in gas or vapor phase. of Ghahramani et al. into the method of monitoring information of Nova et al. in order to achieve the express advantages noted by Ghahramani et al., of an invention that provides sensitivity, selectivity, reading reproducibility, stability during the operation, quick response, small size safety operation, low power consumption, ~15 mW, and low cost.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun Chakrabarti, Ph.D. whose telephone number is (703) 306-5818. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W.Gary Jones, can be reached on (703) 308-1152.Any inquiry of a general nature or relating to the status of this application should be directed tithe Group receptionist whose telephone number is (703) 308-0196.Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission via the P.T.O. Fax Center located In Crystal

Mall 1. The CM1 Fax Center numbers for Technology Center 1600 are either (703) 305-3014 or (703) 308-4242. Please note that the faxing of such papers must conform with the Notice to Comply published In the Official Gazed OG 30 (November 15, 1989).

Arun Chakrabarti

Patent Examiner

Art Unit 1655

September 4, 2001

W. Gary Jones
Supervisory Patent Examiner
Technology Center 1600

9/12/01